AMENDMENTS TO THE CLAIMS:

Claims:

1. (Currently amended) A method of creating frequency diversity in a multicarrier OFDM signal to overcome impairment caused by periodic nulls in a multipath channel, the method comprising assigning redundant ~~copies of each data bit~~ symbols, each such redundant symbol representing the same data bits of a message in the same way and modulating the redundant symbols onto ~~to~~ a plurality of carriers to create a ~~nonperiodic~~ non-uniform carrier assignment wherein frequency intervals between carriers assigned to a data bit are different for each interval.

2. (Currently amended) A method of allocating data bits to multiple carriers for transmission, ~~in a multicarrier modulation symbol, which comprises a plurality of carriers~~ each carrier capable of being modulated with at least one symbol representing at least one data bit, ~~to create frequency diversity and overcome impairment caused by periodic nulls in a multipath channel,~~ the method comprising the steps of:

selecting a data bit from a message;

selecting a symbol to represent the selected data bit;

redundantly assigning the symbol ~~data bit~~ to a plurality of carriers comprising the steps of:

assigning the symbol ~~data bit~~ to a first carrier;

assigning the symbol ~~data bit~~ to a second carrier with a first carrier spacing from the first carrier;

assigning the symbol ~~data bit~~ to a third carrier with a second carrier spacing from the second carrier that is different from the first carrier spacing; and

repeating the steps of selecting data bits and selecting a symbol to represent the data bits and redundantly assigning the symbol ~~data bit~~ to carriers ~~until all data bits are assigned to carriers and all carriers have a data bit assigned~~;

wherein the assignment of symbols ~~data bit~~ to carriers produces non-uniform ~~non-periodic~~ carrier spacing of carriers modulated by the same symbol ~~data bit~~.

3. (Currently Amended) The method of claim 2 wherein each carrier spacing for each symbol ~~data bit~~ is different from every other carrier spacing for the symbol ~~data bit~~.

4. (Currently Amended) The method of claim 3 wherein the ratio of carriers to symbols ~~data bit~~ is 16.

5. (Canceled)

6. (Currently amended) A method of transmitting ~~a message comprising bits of data using a plurality of carriers~~ multicarrier modulation symbols ~~over a multipath channel to create~~

~~frequency diversity that is resistant to nulls at periodic frequency intervals, each symbol comprising a plurality of carriers capable of being modulated with at least one data bit,~~ the method comprising the steps of:

determining <u>a</u> ~~the~~ number of data bits represented by <u>one</u> ~~transmitted in each~~ symbol;

selecting from the message a number of data bits equal to the number of bits ~~transmitted in~~ <u>represented by</u> the <u>one</u> ~~each~~ symbol; and

assigning <u>a portion of the one symbol, the portion representing at least one</u> ~~each~~ data bit, to a <u>first</u> plurality of carriers <u>and redundantly assigning the same portion of the one symbol to at least a second unique plurality of carriers,</u> wherein the frequency separation of the <u>first plurality of carriers and the second plurality of</u> carriers ~~used to transmit~~ ~~each data bit~~ is <u>non-uniformly distributed over a set of available frequencies upon which the first and second plurality of carriers are transmitted</u> ~~non-periodic~~.

7. **(Canceled)**

8. **(Canceled)**

9. **(Currently amended)** An OFDM modulator for transmitting a binary data word in a symbol having frequency diversity comprising:

a ramp counter for producing a series of bin number values;

a look up table for mapping the bin number values to bit select values, the look up table comprising entries that ~~produces~~ <u>produce an</u> assignment of bits to ~~non-periodic~~ carriers<u>, the assignment resulting in bits being repeated over a selection of carriers that have a non-uniform distribution over a set of available frequencies upon which the carriers are transmitted</u> ~~within the symbol~~;

~~a data selector for selecting at least one bit from the binary data word according to each bit select value; and~~

~~an amplitude mapper for producing complex I and Q carrier amplitudes for the selected bits.~~

10. **(Canceled)**

11. **(Previously Presented)** The method of claim 2 wherein some carriers are zeroed to avoid interference resulting from the transmitted signal.

12. **(Previously Presented)** The method of claim 6 wherein some carriers are zeroed to avoid interference resulting from the transmitted signal.

13. **(Previously Presented)** The OFDM modulator of claim 9 further comprising means for disabling ~~the~~ I and Q carrier amplitudes for a particular carrier and zeroing the transmitted energy for that carrier.